

HP NetServer LH 3r Installation Guide for Compaq® 4000/7000 Racks



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Audience Assumptions

The user guide is for the person who installs, administers, and troubleshoots network servers. Hewlett-Packard Company assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

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1 Introduction

This document describes how to mount an HP NetServer LH 3r into a Compaq[®] model 4000- or 7000-series rack enclosure. Refer to the *HP NetServer LH 3r Road Map* and the *HP NetServer LH 3/3r User Guide* that came with the NetServer for instructions on adding accessories to and configuring the NetServer.

The HP NetServer LH 3 (the pedestal version of this NetServer) cannot be installed in a rack enclosure. If you want to convert an LH 3 to an LH 3r for installation in a rack enclosure, contact your HP Reseller for information about the available conversion kit (HP NetServer LH 3 Pedestal-to-Rack Conversion Kit). The HP NetServer LH 3 and LH 3r are shown in Figure 1-1.

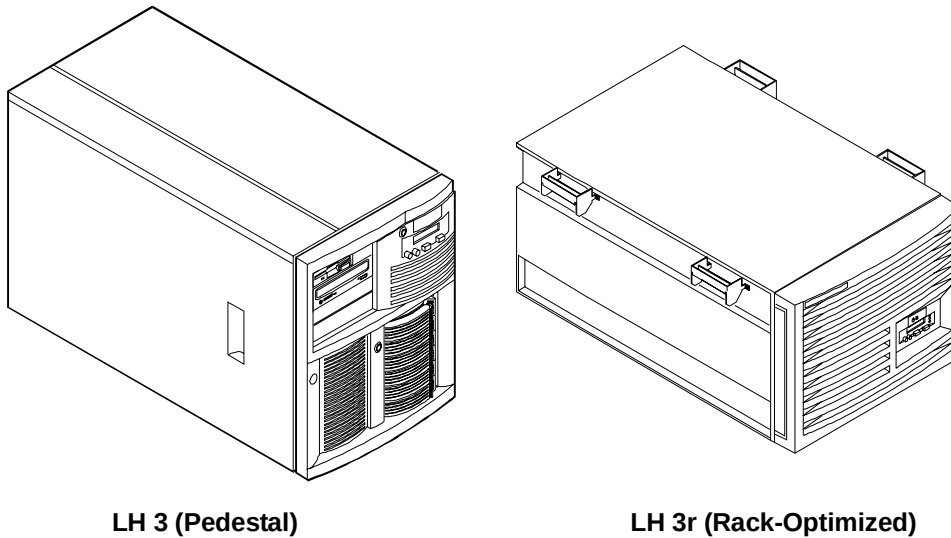


Figure 1-1. Versions of the NetServer LH 3

WARNING	To prevent the rack from tipping over and causing equipment damage or bodily injury, be sure that the stabilizing, anti-tip feature is installed on this rack enclosure (see Figure 1-2).
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WARNING	To prevent the rack from tipping over and causing equipment damage or bodily injury, do not extend more than one piece of equipment at a time out of the front of the rack enclosure.
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Be sure that the stabilizing, anti-tip feature is installed on the rack enclosure in which you are installing the HP NetServer LH 3r. This option consists of two "feet" at the front of the base of the enclosure and, if you are installing this NetServer in a single rack enclosure, two "feet" each on the left and right sides of the enclosure (see Figure 1-2).

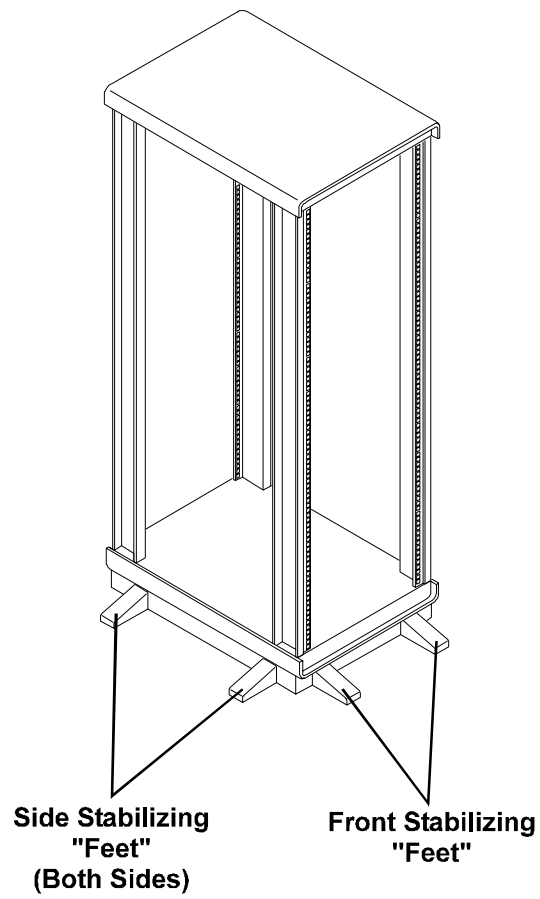


Figure 1-2. Single Rack Enclosure With the Anti-Tip Stabilizing Feature Installed

HP NetServer LH 3r – Compaq Rack Precautions

CAUTION	If this NetServer is not installed according to these instructions, damage to the NetServer or accessories may result. Damage due to improper installation is not covered by the HP Warranty. Observe the precautions listed in this section to maintain the NetServer's reliability.
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When the HP NetServer LH 3r is installed in a Compaq rack enclosure, certain requirements must be addressed to assure that the needs of the NetServer are met.

This NetServer will meet the requirements designed for the NetServer if:

- The NetServer is installed in a Compaq model 4000- or 7000-series rack enclosure. This NetServer is not supported in any other non-HP rack enclosure.
- If you choose to use a door on this enclosure, only a Compaq model 4000- or 7000-series door may be used. No other door may be used. The enclosure may be used with the door open, closed, or removed.
- Mass storage devices listed in the Tested Products List (located on the *HP NetServer Navigator CD-ROM*) are used exclusively in the NetServer.
- Use HP rack accessories. (Note that HP rack accessories are not optimized for Compaq rack enclosures.)

Compaq rack accessories have not been tested with HP NetServer products, but components such as monitors, keyboards, switchboxes, and PDUs often work.

- Use APC[®] uninterruptible power supplies (UPS) with HP NetServers. APC offers mounting kits for Compaq rack enclosures.

This NetServer is not supported in a rack enclosure under circumstances other than those listed above.

See the "Warranty and Support" section of this document for additional support considerations.

2 Overview

The steps required to install the NetServer in the rack are summarized below:

NOTE	This is only a summary; detailed instructions are provided on the following pages.
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- Measure and mark the appropriate holes on all four rack columns
- Install one bar nut on each of the four rack columns
- Insert two rack nuts on each of the two front columns only
- Attach the slides to the columns
- Extend the slides
- Remove power supply modules and hot-swap drives from the NetServer
- Lift the NetServer onto the slides
- Secure the NetServer to the slides
- Remove the lifting handles from the NetServer
- Install the power supply modules and hot-swap drives in the NetServer
- Push the NetServer back into the chassis
- Install the recessed mounting brackets on the two front columns only

Terms used in this document are defined in the table below.

Term	Definition
Bar nut	Short, threaded bar used behind slide mounting flanges. Used in place of individual nuts to mate with slide mounting screws.
Rack nut	Single nut designed to clip behind the rack column and accept a screw through the hole in the column.
Slide	Extendible side bracket which is attached to the rack chassis columns on which the NetServer is mounted. Consists of stationary component, and an extendible member (see Figure 3-3). Allows access to the NetServer after it is installed in the rack chassis.
Slide mounting flange	Mounting flange located at either end of the slide (see Figure 3-3).
Rack (rack chassis, rack enclosure)	The equipment enclosure in which the NetServer will be installed.
Recessed mounting brackets	Two brackets (one tall, one short) that attach to the front of the NetServer and the front rack columns to hold the NetServer in the closed position.
EIA unit	Industry standard measurement (1.75 inches / 44.45 mm), consisting of four vertical mounting holes in a rack column.

3 Installation

This section contains detailed instructions for installing an HP NetServer LH 3r in certain models of Compaq rack enclosures.

Preparation

Before beginning the installation of the NetServer into the rack, you must prepare the rack and the NetServer.

Determine the location at which the NetServer is to be installed in the rack enclosure. Mark the bottom and top of this location on the rack columns. The HP NetServer LH 3r measures 8 EIA units tall.

Marking the Installation Holes

You will mark two holes on each of the four columns to use for the bar nuts and screws that hold the slide to the column.

When marking the holes, mark the outer surface of the column (see Figure 3-1); on the front columns, this is the column surface facing forward; on the rear columns, this is the surface facing rearward. Use tape or a marker pen to mark the appropriate holes on each column.

To mark the slide mounting holes (refer to Figure 3-1):

1. Count up from the top of the unit below, marking the 20th and 22nd holes.
2. Repeat for all four columns.

NOTE Do not place nuts or screws in the holes, only mark them.

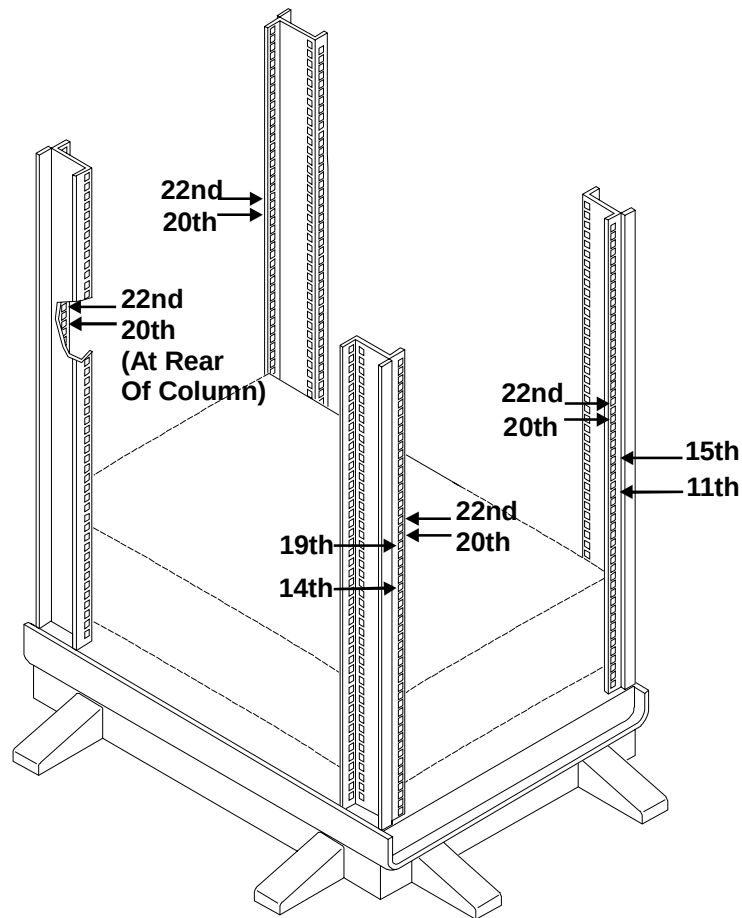


Figure 3-1. Marking Holes for Installation

You will mark two holes on each of the front columns to use for the rack nuts where the two recessed mounting brackets attach to the columns. When the installation is complete, these brackets secure the NetServer in the rack enclosure.

To mark the bracket mounting holes (refer to Figure 3-1):

1. On the left front column, count up from the top of the unit below, marking the 14th and 19th holes.
2. On the right front column, count up from the top of the unit below, marking the 11th and 15th holes.

Installing the Bar Nuts, Screws, and Rack Nuts

Once you have marked the appropriate holes, install the bar nuts and screws on the columns:

1. Position one bar nut behind holes 20 and 22 (previously marked).
2. Insert the two screws, with flat washers, through the two holes and start them into the bar nut (see Figure 3-2). Do not tighten these screws, yet.
3. Repeat for all columns.

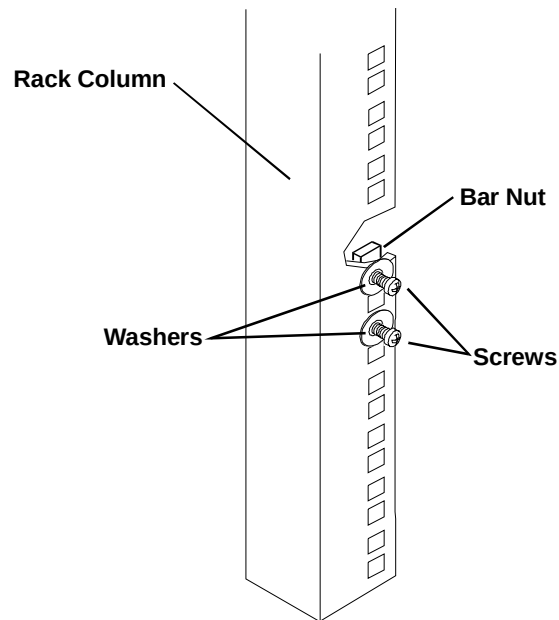


Figure 3-2. Installing Bar Nuts

Install two rack nuts in each of the two front columns:

1. Insert one rack nut in hole 14 and one in hole 19 (previously marked) in the left front column only.
2. Insert one rack nut in hole 11 and one in hole 15 (previously marked) in the right front column only.

Mounting the Slides

1. Orient each slide so that the front of the slide attaches to the front column and the rear attaches to the rear column. This ensures that once installed, the slides will extend correctly, toward the front of the rack (see Figure 3-3).

NOTE	The slides do not come apart; they are one piece.
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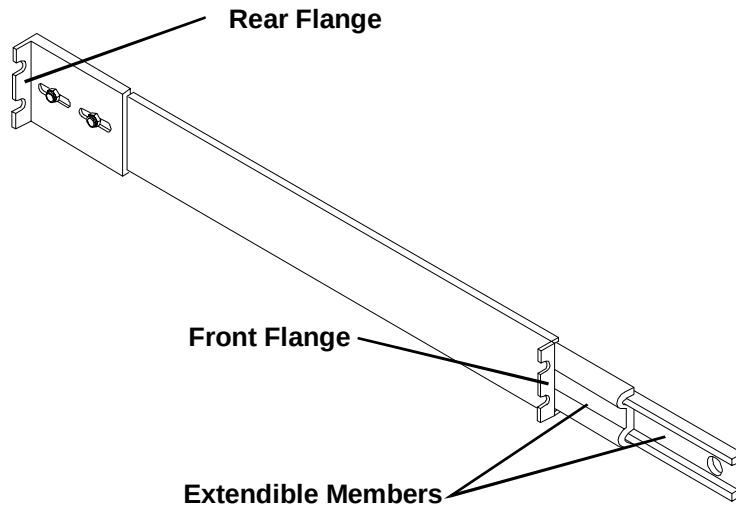


Figure 3-3. Slide Components and Orientation

2. Place the mounting flange of the slide between the inside of the column and the bar nut (see Figure 3-4). Do this at the front and rear of the slide.
3. Press the slide firmly against the columns, lift up against the screws, and tighten all four screws.

NOTE	It is very important to lift up on the slides prior to tightening the screws. Tightening the screws without lifting up on the slides will result in interference between the NetServer and other equipment in the rack; you may not be able to slide the NetServer into the rack enclosure after completing the installation.
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4. Repeat for the other slide.

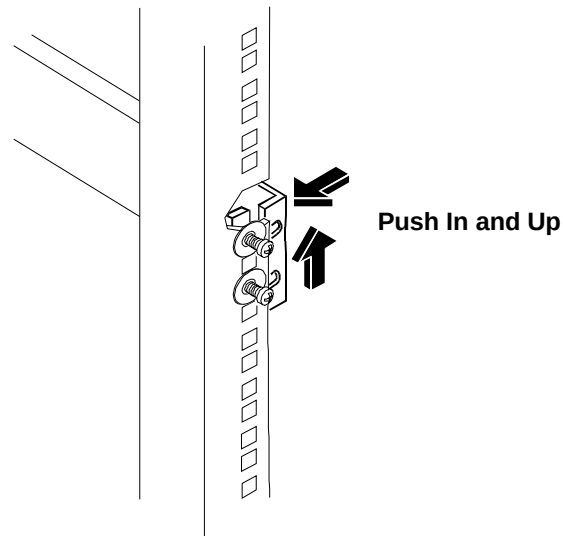


Figure 3-4. Mounting a Slide to a Column

Installing the NetServer

1. Extend the slides until you hear a click, indicating they are fully extended in the locked-out position. Note that the slides do not come apart (see Figure 3-3).

WARNING	To prevent the rack from tipping over, be sure that the stabilizing, anti-tip feature is installed on this rack enclosure (see Figure 1-2).
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2. Before you lift the NetServer, remove the power supply modules and the hot-swap hard disk drives to reduce the weight.

WARNING	This NetServer weighs up to 160 pounds (73 kg.) when fully configured. Remove all power supply modules and hot-swap hard disk drives before lifting the NetServer. Use two people when moving the NetServer or lifting it into the rack.
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3. Using two people, lift the NetServer using the handles on each side. Move the NetServer in between the extended slide members and position it so that the handles are resting on the slide members (see Figure 3-5 and Figure 3-6).

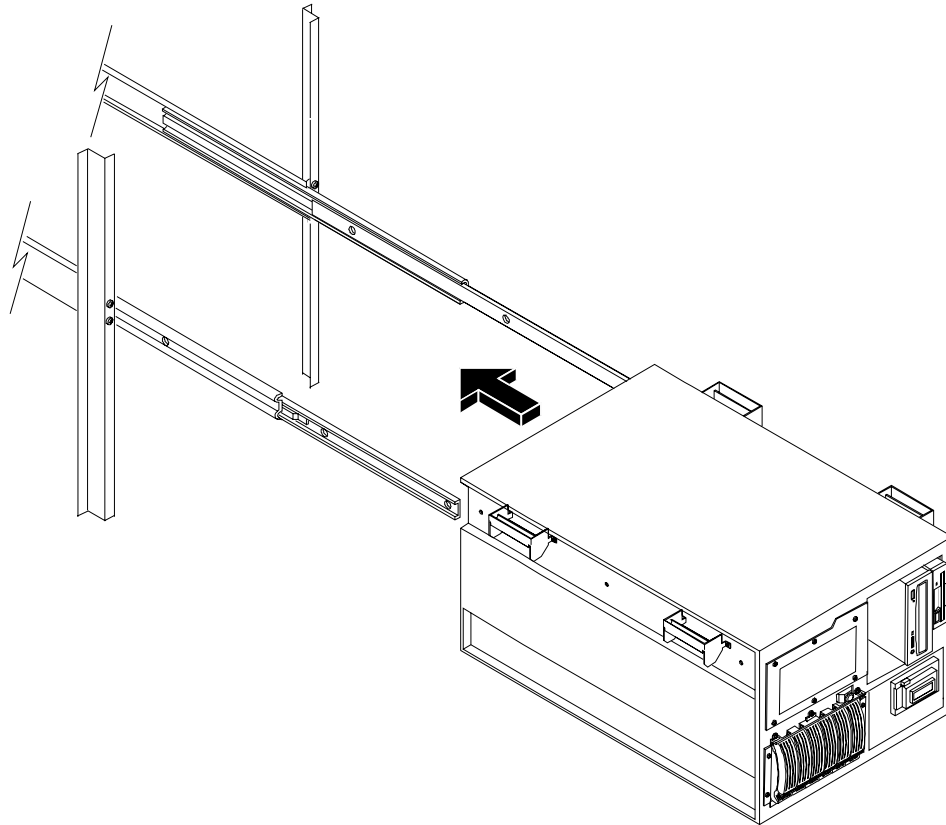


Figure 3-5. Lifting the Server Onto the Slide Members

4. Line up the mounting holes in the slide members with the holes in the NetServer chassis, insert the three screws on each side, and tighten them (see Figure 3-6).

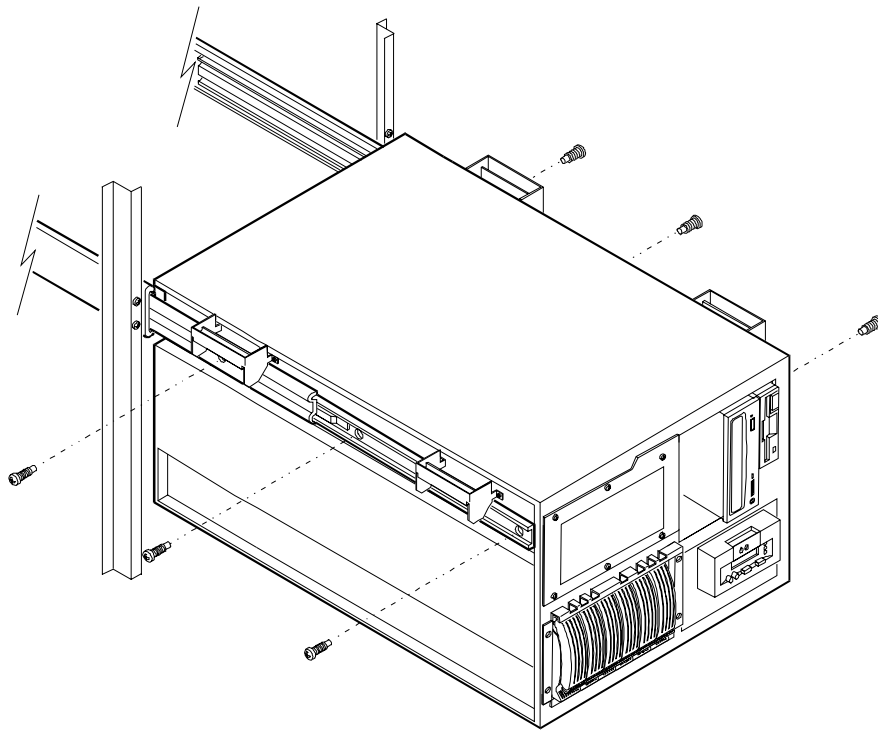


Figure 3-6. Attaching the Slides to the Server Chassis

5. Remove the two screws from each of the four handles and remove them (see Figure 3-7). Keep these handles and screws for later use, in case you need to remove the NetServer and ship it.

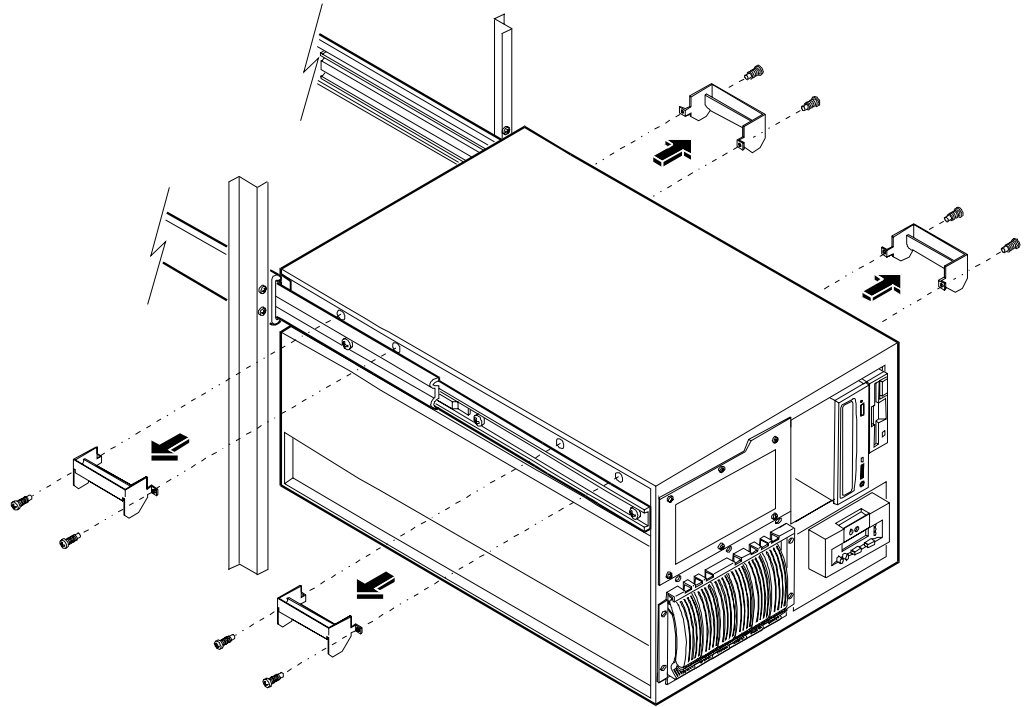


Figure 3-7. Remove Mounting Handles

6. Reinstall power supply modules and hard disk modules removed earlier.

Installing the Recessed Mounting Brackets

The NetServer is held in place (inside the rack enclosure) by two recessed brackets. These are attached to the face of the NetServer chassis and the two front rack columns.

To install these brackets:

1. On both slide members, simultaneously depress the lockout releases and push the NetServer completely into the rack enclosure (see Figure 3-8).

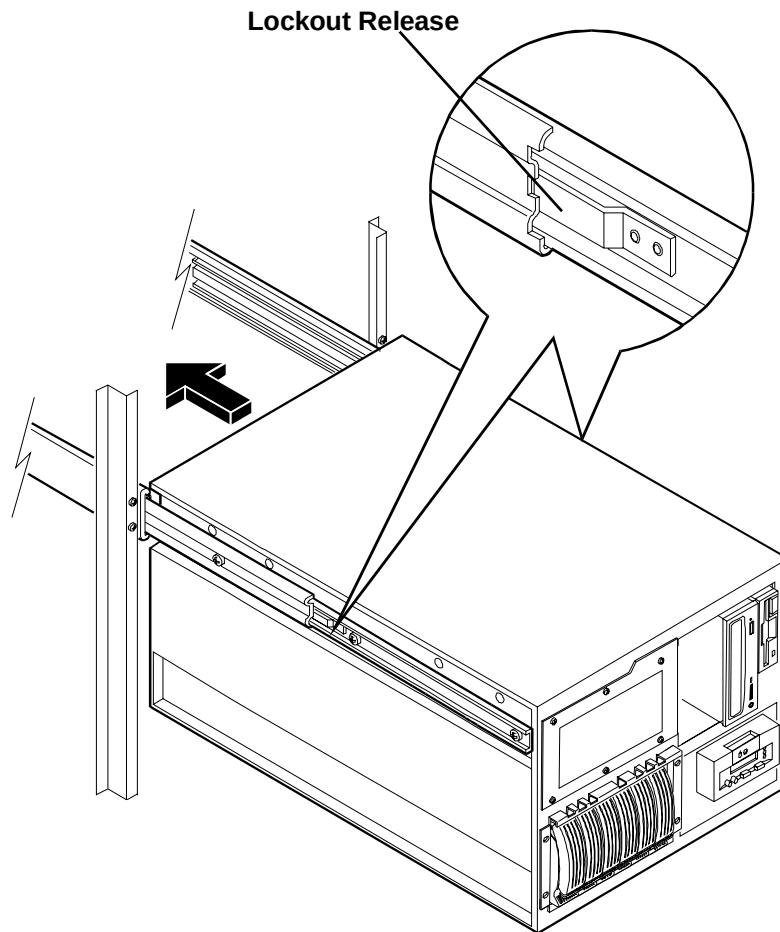


Figure 3-8. Location of Lockout Releases

2. Install the two screws that hold the tall, left-hand bracket to the face of the NetServer chassis (see Figure 3-9).
3. Install the two screws that hold the short, right-hand bracket to the face of the NetServer chassis (see Figure 3-9).

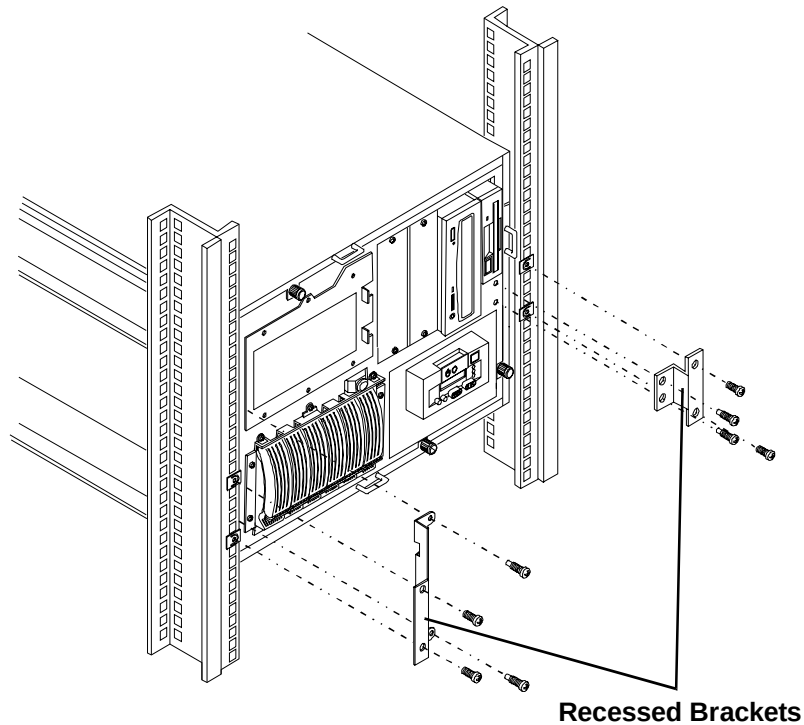


Figure 3-9. Installing the Recessed Mounting Brackets

4. Install two screws into the two holes in the left-hand recessed bracket and into the two rack nuts (previously installed) on the left column (see Figure 3-9), and tighten.
5. Install two screws into the two holes in the right-hand recessed bracket and into the two rack nuts (previously installed) on the right column (see Figure 3-9), and tighten.

4 Warranty and Support

Refer to the warranty statement provided with your original HP NetServer system documentation for the warranty limitations, customer responsibilities, and other terms and conditions.

CAUTION

Improper installation of HP rack-mount components into third-party racks may result in unreliable operation or damage to the HP components. Repairs to HP components due to improper installation into third-party racks are not covered under the HP warranty.

Hewlett-Packard is not responsible for damage resulting from the improper installation or operation of HP rack-mount components into third-party racks, or unsafe environmental conditions that exceed operational or non-operational specifications of HP equipment.

HP rack enclosures, rack accessories, and installation procedures are designed and tested to ensure that the NetServer has adequate cooling airflow and proper temperature control to maintain system reliability.

HP Repair and Telephone Support

Refer to the *Service and Support* chapter of your HP NetServer system documentation for instructions on how to obtain HP repair and telephone support.

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